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Project Director: Mark Tebeau (m.tebeau@csuohio.edu)

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White Paper

Strategies for Mobile Interpretive projects for Humanists and Cultural Organizations

Mark Tebeau, Ph.D.

Center for Public History + Digital Humanities

Cleveland State University

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Introduction

This paper draws upon lessons learned from the “Mobile Historical” project funded by a Digital Humanities Start-Up Grant from the National Endowment for the Humanities. This white paper focuses on strategies for developing mobile interpretive projects. It is written primarily for humanists and cultural organizations interested in deploying mobile projects, although intended for a broad audience in mind. It is our hope that this project will help historians, historic preservationists, K-12 educators, and small historical organizations to deploy mobile projects in outdoor landscapes. Principally, we discuss the mobile project *Cleveland Historical*, developed by the Center for Public History + Digital Humanities (CPHDH). In particular, we explore our decisions and consultations toward the effort to make *Cleveland Historical* extensible in the mobile publishing framework *Curatescape* (which was termed “Mobile Historical” in our funded NEH project proposal.) Importantly, this white paper recognizes that the problems facing those interested in mobile projects are ambiguous and that there is not a single best practice in doing projects. Indeed, we often find ourselves responding to queries about best practice with the words, “it depends.” Nonetheless, we believe that our approach is suggestive of many of the larger considerations required for implementing a mobile interpretive project, particular native mobile applications. Finally, in writing this, we draw on insights from advisors as well as the work of project teams in a variety of places who are implementing projects using the Curatescape framework. These included, among others: Spokane Historical, Explore Baltimore Heritage, Kentucky Historical, Discover Medina, St. Paul Historical, Connecticut Communities, and New Orleans Historical.

Background

Cleveland Historical emerged from a decade-long process in which Professors Mark Tebeau and Mark Souther at Cleveland State University explored how urban public historians could interpret place in the digital age, specifically how they could curate a city. It drew upon best practices from several different disciplines including oral history, public history, and the emergent digital humanities. Early incarnations of the project emphasized the importance of shared authority as an oral history process in which interviewers and interviewees and publics shared authority for constructing oral history, interpreting it, and returning it to the community. The resulting interviews, now more than 800 to date, comprise the Cleveland Regional Oral History Collection, which, along with Cleveland Memory forms the primary source documentary spine of the Cleveland Historical project.

Emphasizing collaboration and gaining from use of existing resources, and drawing upon the interactive rhetoric of web 2.0, we developed a series of systematic, cumulative public history programs over a period of several years. Students, scholars, teachers, and communities collaborated to curate exhibitions about neighborhoods and historical topics, including public presentations, physical exhibitions, public radio programming, and student-created websites, such as culturalgardens.org. Recognizing the digital shift in public and urban history, both in terms of publication but also in the burgeoning interactivity of web 2.0, we established the Center for Public History + Digital Humanities. Developed over a four-year period, from 2005 through 2009, the Center rolled out the Euclid Corridor History Project, 19 street-located touch-screen history kiosks located along Cleveland’s central street and rapid transit line. However, just as the project was going live, the smartphone revolution threatened to kill the initiative.

Cleveland Historical emerged out of the stew of those projects, most notably the team's question as to whether it could adapt the Euclid Corridor concept to smartphones. The Center began to consider what it might mean to curate the city in a mobile age, the Center and challenged itself to build a standards-based mobile application that reimagined Cleveland's history, making it available on the streets, embracing the full portability of mobile and the full physicality of the city. Beta tested in October 2010, *Cleveland Historical* was released for iOS platforms in November 2010. Drawing on insights from its early test period, Cleveland Historical was formally released in May 2011. To date, hundreds of community collaborators and partners have developed more than 500 interpretive, geo-located multimedia stories, using historical images, oral histories, archival film footage, interpretive videos, and text. As of 2013, Cleveland Historical has over 500 stories, 500,000 words, 4000 images, 1000 audio clips, and 100 videos, and it has become a remarkably deep and broad historical resource. Approximately 13,000 people have downloaded the app, used its rich social media functionality, taken dozens of locally-developed historical tours that interpret the city, and built K-12 curriculum around the app. Also, *Cleveland Historical* received awards from E-Tech Ohio and the National Council for Public History.

Curatescape: a Framework for Humanities Curation

When we built Cleveland Historical, we sought to create a mobile tool of some sort that could be shared and generalized beyond Cleveland. That endeavor, initially titled the Mobile Historical project, received funding from the Ohio Board of Regents, Cleveland State University, and the National Endowment for the Humanities (this DH start-up) to explore the process of extending Cleveland Historical. As this new tool emerged, the Curatescape mobile publishing framework was born.

Curatescape is a mobile app framework for iOS & Android that includes a website optimized for display on mobile devices—phones, tablets, laptops, and desktops. Built on Omeka, everyone's favorite open source archival CMS, Curatescape is a technologically-sophisticated, low-cost solution to mobile curation that is ideal for small- to medium-sized cultural heritage and educational institutions. It is designed to curate the landscape or curate a museum collection, through the use of geo-located (outdoor version) historical texts, archival film and images, oral history (and other) audio, and short documentary videos.

Curatescape has wide-ranging functionality including the following: content geo-located on a map (or tied to the organization of your museum/gallery), tours, search and faceted browsing, layered multimedia, social media, hyperlinks, analytics for web and mobile, as well as a host of other features and functionalities. Curatescape is in the midst of a complete redevelopment. Version 2.0 will have a more sophisticated user interface that will offer users a richer experience, on phones as well as tablets. Users will be able to create favorites and tour itineraries and algorithms will help guide users to popular content or stories related to their interests.

Conceptually, Curatescape emphasizes storytelling, rather than the display of single archival objects, the default approach for so many mobile apps. A story can be told in many ways, from the historical to environmental or from the literary to the architectural, but effective humanities projects must take an interpretive stance that builds meaning through evoking context, place, or identity. Importantly, Curatescape pushes curators to move beyond text to, to create layers of meaning through text, images, and multimedia.

Technologically and conceptually sophisticated, Curatescape is an affordable and user-friendly solution that allows small to mid-sized cultural organizations, preservation groups, or educational institutions an opportunity to reclaim their interpretive voice—to tell their own stories—and reconnect to their communities and audiences. Presently, over twenty universities, heritage preservation organizations, historical societies, and museums have adopted Curatescape.

Humanities Interpretation in the Mobile Age

Our approach to mobile curation emphasizes humanities interpretation as its central and defining feature, evident especially in our emphasis on storytelling through carefully constructed layers of multimedia digital artifacts. Unlike other notable mobile and digital endeavors that emphasize the archival object as the central unit of analysis, we emphasize a humanities or social-science based interpretive stance, whether that cultural perspective is historical (as ours is), environmental, or literary. We believe that this building of cultural context, of telling stories, through the interplay of layered primary and secondary materials, provides a richer and more nuanced experience than displaying single archival images or objects. Additionally, by geo-locating stories, we emphasize that the richness of landscape itself becomes part of the interpretive frame—another layer of data with which audiences can interact. Finally, we allow for individual stories to have many strands whose elements are connected through a variety of meta-interpretive frames that include tours, tags, subject, and search. Tours, for example, provide paths through the stories, reframing them within broader interpretive contexts, defined by geography, time period, or theme. Likewise, common-sense tagging, formal subject headings, and free search, allow users to aggregate materials in a fashion more suited to their particular interests. Altogether, we have provided for the possibility of multiple layers of overlapping interpretations that lead from individual archival objects toward broader thematic considerations.

The mobile revolution is transforming the digital age, and we hope that our work in building Cleveland Historical and developing Curatescape can provide guidance to humanists—working the academy or cultural institutions—become more effective curators in an increasingly mobile age.

The Mobile Transformation

Mobile technologies have accelerated and transformed the digital age. The Pew Internet and American Life Project and the Horizon Reports have outlined the dimensions of that change. Over half of Americans now use smartphones to access the Internet, and within two years more than 1.5 billion people worldwide will engage the Internet primarily through mobile. The projected “rise of apps culture” is here, with more than 17 billion distributed worldwide, with a growing number issued by, or on behalf of cultural organizations. The swiftness and scale of this change have been revolutionary, suggesting new paradigms for professional practice in numerous fields, including museums. However portrayed, the unprecedented saturation of mobile devices and software apps presents a daunting challenge to humanists, cultural institutions, and educators, many of whom are still struggling to adapt their professional practices to the hypertext age.

Digital and especially mobile technologies have shifted how, when, where, and in what ways we access information, including humanities interpretation. Of particular note, there has been a dramatic shift in how, when, and where we consume information with the advent of mobile. Most obviously, the introduction of the iPhone in 2007 began the shift in access from desktop and laptops toward mobile devices. By 2011, sales of mobile devices were outstripped desktop computers. By 2013 more than half of all Americans owned smartphones, and something on the order of 15% of all Internet traffic occurred on mobile devices. Even more striking, emerging industrial powers, and outside the developed world, more than half of all internet traffic occurs on mobile devices. Thus, we are now routinely using small and highly portable screens—often with 4 inch or smaller viewing areas (measured, corner to corner, on the device.) Of course, tablets have larger viewing areas, but are nonetheless much smaller than traditional computer or television screens.

Not surprisingly, using a smaller screen alters how we engage information, both as consumers and producers. Smartphones, along with cloud computing, mobile networks, and higher and higher data transmissions speeds, have created altered the timing of how we access information. Mobile devices make it more and more possible to access information any time of day or night. Research on this so-called “timeshift” confirms that how we engage the Internet has shifted with the advent of mobile devices. We often ingest information in smaller chunks, engaging it whenever we have time and wherever we are presently located. Often this means that desktop or laptop computers are our devices of choice during the hours of the typical work day, from 9 to 5. At night and in the morning, however, we are more apt to read the news and use our phones to access and share information.

As these trends make information access ubiquitous in terms of time, they also have altered the locations and places where we access information. The ability to consume information anywhere has created new ways for us to engage the landscapes that surround us. By making interpretive materials available in the landscape through mobile devices our ability to interpret those spaces has expanded dramatically, and landscapes themselves—their architectural, environmental, and social characters—are now able to become part of the interpretive framework. The landscape is no longer a backdrop for humanities interpretation but a physical contributor to those frames and understandings.

The shift toward mobile has coincided with the emergence of a more interactive and dynamic web environment, including especially the rise of social media. Mobile tools are connecting people in new ways, both to one another and to physical places, even as the social web is rewriting how we are constructing knowledge. If the social web has emerged independent of mobile computing, its features have been accentuated by the character and use of mobile devices, most notably with geo-social tools and services, such as Foursquare.

As digital transforms how information is being consumed, it has resulted in a proliferation of interpretive approaches that has challenged the authority and power of traditional institution of cultural interpretation, undermining the hegemony of publishers, news organizations, cultural institutions, and universities. In the scholarly community, blogs, web-based interpretive projects, open-publishing, and other digital publishing endeavors have challenged the traditional scholarly currency of journal article and monograph as the standard means for expressing humanities

interpretations. If the battle continues to be waged in academic departments over the value of digital tools in expressing scholarship, major humanities professional organizations have moved decisively to embrace the new digital era. Likewise, in museums and public humanities settings, there are similar changes underway with the advent of digital archives, online exhibitions, and the move toward openness. As with the academy, these trends have challenged traditional practices, even as they opened new opportunities. If the pace of innovation in museum settings has been slow, it nonetheless has accelerated in recent years with more and more institutions moving toward adopting new technologies, such as mobile.

The possibilities of humanities interpretation have expanded dramatically in the digital era. Indeed, in practice there have been a number of important ways that digital has augmented and extended the scholarship of humanists. Even putting aside the ways that the work of humanities research has been expanding to focus on the expression of humanities interpretations, we find several important innovations. First, humanists making arguments in digital form often have an expanded repertoire of cultural and multimedia objects through which they can express argument. Oral histories and soundscapes are now available for audiences to hear in a fashion that would have been uncommon in the past. Images, texts, and other media have proliferated, providing interpreters a wider array of elements through which they can make argument. And, finally, other metadata features of digital era such as tags, links, community comments, and social media also provide new avenues for developing interpretation, contexts, and controversies. If perhaps we read fewer book-length monographs, as a society, than we once did, our appetite for information, including interpretive insight does not appear to have waned. Indeed, the volume of information flowing along the Internet continues to grow exponentially. In fact, the amount of Internet traffic passing through mobile phones today is as great as the traffic on the entire Internet in 2000. Moreover, even as the volume of information has increased there is every reason to believe that users continue to seek out high-quality interpretive information. In this context, the proliferation of mobile offers an opportunity for humanists to build interpretive strategies designed for the evolving architecture of the Internet, including mobile devices, as well as the build new and wider audiences.

Thinking about Humanities Curation in the Mobile Era

We designed Curatescape to emphasize a layered approach to interpretive humanities storytelling, based on an understanding of the opportunities offered by mobile devices for humanities curation. What follows is an argument about what our team at CPHDH believes are some best practices for humanities curation in mobile environments. In developing interpretations for Cleveland Historical and technology for Curatescape, we have emphasized enacting an interpretive strategy based in the interdisciplinary diversity of humanities scholarship and the recognition of the ways that mobile (and digital) technologies enhance and constrain storytelling. This allows for many approaches to interpreting landscapes, texts, or artifacts, emphasizing that storytellers adopt strong, critical, narrative voices. It also asks storytellers to recognize that users of mobile technology (and digital narratives more broadly) have altered the ways that we consume information, not just how and when we engage it. Thus building mobile interpretive strategies demands that we adapt best practices in humanities interpretation to a new technological environment, in which information is consumed differently at different times.

We believe that what delineates humanities curation from archival or library-based curation or from other forms of curation are the interpretive frames and contexts that humanists bring to their work. Whether literary, environmental, embedded in rich understandings of material culture, or historical, these interpretive perspectives give humanists both a unique voice and understanding, shaping how we express and organize knowledge. Cleveland Historical, for example, has been informed by the scholarly perspectives of two scholars steeped in urban history, the study of landscape, and social/cultural history. We want to explode the prevailing practice in mobile environments of using text, or text and an image, or an image as the basis for interpretation. Effective humanities curation involves more than displaying images on a map. It requires building an argument, informed by disciplinary knowledge and a rich array of source materials, whose presentation is informed by the context in which the materials are being engaged. Project advisors have argued to us that this emphasis on stories is part of what makes both Cleveland Historical and Curatescape unique and valuable to the field broadly.

In part, the layered approach of Curatescape is informed by the mobile environments in which it is designed to operate. After all, digital tools are not the books or journal articles that have long defined the humanities. Digital offers access to a wider variety of multimedia materials, providing more vehicles for storytelling. Within that universe, mobile devices are distinctive. Unlike desktop environment, this information is accessed on a smaller screen—not to mention anywhere and anytime. Small screens provide information in smaller chunks, which encourages us to nibble rather than to bite into a story. Likewise, ubiquitous information environments also challenge us to rethink our approach to storytelling.

Thus, we designed the information architecture and user experience of Curatescape to emphasize a layered approach to storytelling. We did this in two subtle ways. First, the user interface introduces stories as complete packages—containing layers of multimedia. It does not introduce images or sound independent of the interpretive story. This approach allows (and demands that) curators frame meaning, build context, and create multiple layers to their stories. Second, we use the Omeka content management in such a way that each “item” is a “story,” conceived as a compounding archival object, composed of several parts. Those compound objects include multiple audio, video, or sound files. As a result, the technical fabric of Curatescape is oriented around interpretive, multimedia, and layered storytelling, implicitly making an argument about how central this approach is to mobile humanities curation.

Humanities curation also demands that curators take an interpretive stance. Such interpretive perspectives are sometimes born at the beginning of a project and are sometimes developed iteratively, over time. For example, Cleveland Historical evolved from several early iterations, including an effort that culminated in the Euclid Corridor History Project in 2009-10. Through 22 kiosks, located at 19 bus stations along one of Cleveland’s chief East-West streets, Euclid Avenue, we shared interpretive narrative, historic images, and oral history clips. As that project evolved, we began to realize that our choice of subjects and our approach to telling stories were informed by our training as urban historians. Coupled with our interest in oral history and commitment to social history, we discovered a common commitment to sharing the region’s stories through the voices of its residents—both ordinary folks and community leaders. Finally, we realized that our public history training—both formal and informal—was prompting us to take on a curatorial role, meaning that we viewed the city as a museum for teaching and learning

history, not to mention we saw our work as having a role in preserving the city's historic landscapes and building public audiences. By the time the Euclid Corridor emerged live, we'd come to understand our work as curating the city of Cleveland, imagining it as a living history museum.

Of course, building an interpretive perspective for a mobile project is not the same as arguing for mobile apps that are monographs or textbooks. Rather, we believe that scholars possess a both breadth and depth of knowledge that goes beyond the anecdotal, the archival, or the hyper-local. We must express those scholarly understandings in a fashion that complements other ways of knowing—whether those based in other disciplines, local knowledge and lore, or in the community. The boundaries of mobile projects demand the integration of the scholarly with the communal, and the challenges of humanities curation push us to confront this challenge. The Cleveland Historical project, for example, is sometimes compared to the wonderful Encyclopedia of Cleveland History (or even Wikipedia) and sometimes compared to the hyper-local histories of Arcadia publishing. When we are asked how our work is different, we argue that our work is a collection of interpretive vignettes, woven together through a variety of conceptual and technical frames. Our work is designed to interpret the city, to curate it as a living museum, through which we invite questions, discussion, and an ongoing collaborative of content-development with the community. Our work derives from scholarship and broad historical contexts, as well as local insights. And, moreso, our interpretations are designed to be engaged on mobile devices, in the landscape, and (sometimes) while sitting on one's couch at home. Regardless, recognizing the distinctiveness of our perspective reveals much about the boundaries and important building a clear and definable intellectual frame for a project. Thus, we believe that it is imperative to recognize that our humanities projects cannot and should be all things to all people. Effective humanities curation possesses a clear point of view stands as arguably the first and most important rule of effective storytelling.

Curating landscape through interpretive humanities stories should also be differentiated in subtle ways from the sort of curatorial work being done in building a digital archive. Both curatorial endeavors are informed by interpretive assumptions, professional metadata practices, and a host of challenging technical questions. And, there is no doubt that both types of approach exist not as opposites but along a continuum of professional practices in digital curation. Once we've dispelled the notion that these endeavors are diametrically opposed or unrelated, they are nonetheless different in important ways. Digital archival collections generally seek to make individual archival objects available to researchers, publics, and communities, organizing them and making them discoverable in a variety of ways. Interpretive humanities stories, by contrast, are typically larger than that single archival object. If the interpretive humanities narrative usually possesses more than a single element, scholars would argue that our work is a purposeful aggregation and combining of these elements, according to disciplinary practice, perspective, and theory. This effort is distinct from the ways a search of an archive yields a collection of images related to the search rubric, even though we recognize that digital technologies and algorithms may well be on the way to creating an alternative and evocative form of curation.

Using layers of text, image, audio, and video allows the storyteller to construct meaning in a variety of ways and encourages us to use these layers creatively. Consider, for example, all the possibilities of how one might use multimedia—not just text—to interpret a historical monument, such as the statue of Milan Stefanik, a Slovenian cultural figure memorialized in a prominent public square in Cleveland, as well as throughout the world. One could tell the story of Stefanik in images, comparing the Cleveland monument to others throughout the world through a photo essay. Alternately, one might interview the leaders of a present-day effort to move the Stefanik memorial to the nearby Cleveland Cultural Gardens and contrast their points of view with what a scholar’s perspective. Or, better yet, those views could be contrasted with primary-source archival materials that explained why the Stefanik Memorial was originally not included in the Cultural Gardens. Or, perhaps, the interpretive team could produce a video exploring how historic monuments frequently are relocated. In each of these cases, multimedia elements would help carry the interpretive perspective of the story. Not only does this allow one to build multiple layers of meaning beyond written text, but also it allows one to build scholarly context. In this case, we suggest that the story of the Stefanik memorial reaches beyond Cleveland, to other places and times throughout the globe and also we would (if we actually made the proposed short video) be making the argument that statues are not just historically “constructed” and “re-constructed” with time, but that such cultural reconstruction is accompanied by literally moving statues, which is surprisingly common.

The story of the Stefanik monument hints at how the humanities perspective of a project team generates a project’s identity. Indeed, Cleveland Historical. Cleveland Historical reflects my scholarship and that of my colleague Mark Souther. With over 500 stories, 500,000 words, 4000 images, 1000 audio clips, and 100 videos, it has become a remarkably deep and broad historical resource. But, it is not encyclopedic. It is perhaps best described as a look at Cleveland’s urban social history, as told through stories of landscapes, people, and events. And, although it seeks out and addresses many different sorts of scholarly problems, at its core, its humanities perspective is clearly informed by the literatures of urban social and cultural history. One could imagine, as we have, many different approaches to the region’s history including an environmental perspective, literary perspective, or cultural studies frames. Each such humanities frame would not only generate different types of multimedia and textual layering, but would also be reflected in the choices of the stories themselves. For instance, an environmental perspective on Cleveland might produce an app that possessed a host of different geological or biological referents and materials, with completely different stories.

Building a layered interpretative approach involves more telling multimedia stories it also includes creating multiple threads or arguments that run throughout an entire project. Toward this end, we’ve developed an extensive “tour” functionality for Curatescape. Tours allow curators to create threads of meaning—connections—between stories. Borrowing the concept of an urban walking tour provides an insight into a neighborhood, we have conceptualized tours as ways of organizing the content through different interpretive lenses. These frames need not be just neighborhood-based or geographic in orientation. They can be thematic, temporal, or disciplinary. Imagine, for example, a women’s history tour, a tour of art-deco architecture, or a 1930s tour? Each tour provides an overarching framework through which a particular interpretive story can be framed and reframed. Indeed, just as with the urban landscapes, individual interpretive stories can appear in multiple tours, providing a new way of imagining

and experiencing those stories. The tour, then, becomes more than a way to connect stories that are geolocated within a single neighborhood; it allows curators to build connections that cross geography. Tours contain a narrative that weaves its component stories together, and curators can order those stories in any way that makes sense, although we've noted that app users don't always follow the best-laid plans of curators. Future versions will possess richer maps to accompany tours, the ability to add multimedia items to the tours (such as an audio track or additional video or photography), as well as the ability for users to build and share their own tours.

In developing tours for Cleveland Historical and experimenting with their functionality, we have discovered that tours provide a curator's point-of-view, but users often seek to find their own paths through the interpretive stories using search and other functionality. Toward this end, we have continued to add a variety of features that accentuate the concept of layered interpretation. These include social media functionality, allowing users to share their discoveries, as well as user comments, which provides forums for public feedback and conversation. Additionally, using tagging, subject headings, and search all provide alternative ways of aggregating stories, allowing users to follow their own interests. In recent versions of the website, we have also randomized the presentation of stories, and allowed users to select a "random story." This enhances allows users an even more serendipitous discovery, which we've been surprised to learn is a favorite way for returning users to explore the stories on the app. In the future, we will allow users to identify and share favorites, and we will provide an algorithmic search that will direct users down paths that other users interested in the same stories have favored. Altogether, these features—present and future—underscore our sense that humanities curation is layered and non-linear, especially in mobile environments. Just as important is seeking to balance our own curatorial voices with the interests and perspectives of our users, allowing them to be able to discover and make connections between stories.

Landscape, as we've already suggested, plays a vital interpretive role in many mobile projects. As with most landscape apps, Curatescape geolocates stories on a background map. This is a common practice among many digital projects, and some have gone so far as to argue that geolocation will be the foundation of Web 3.0. In mobile projects, geolocation provides users with a handy way to discover stories near to their present location and to getting directions to stories in which they are interested. Also, geolocation provides an urban context for narratives, and places stories in relation to one another on a map. For users familiar with a city or landscape, pinpointing a story on a map can provide a modest amount of interpretive context. By contrast, for users less familiar with the geography of a place, geolocation offers very little in the way of interpretive context. Likewise, geolocating a story on a contemporary, or even historical, map merely places it in the landscape. It does not provide, ipso facto, interpretation. This is true even of historical maps. Furthermore, although a map may well provide an important referent, such contexts are also not always useful because of the small screens of smartphones. In this miniaturized context, maps are less detailed and expansive than on tablets or desktops, providing less detail and framing than one might see on a bigger screen.

Geolocation has other shortcomings as well. In large projects with many stories (i.e. Cleveland Historical) the number of pins (stories) on the map soon overwhelms the map rendering it useless. Design strategies help to alleviate this issue, but do not do so completely. For example,

concatenating large numbers of pins together (usually indicating the number of map points that have been collected into that pin) can make a map less busy at maximum zoom. As the user zooms, those concatenated pins split, revealing sub groupings, and eventually the full range of points on the map. This approach surely makes the map view more appealing but does not solve the underlying problems of viewing large numbers of stories on a small-scale map. Other approaches include color-coding pins or showing only a limited number of pins on the map. Neither of these solutions completely alleviates the interpretive problem presented by this phenomenon. In the former case, color-coding pins produces a rainbow that does not (on its face) provide a richer interpretive perspective, even if it makes discovery marginally easier. In the latter case, limiting the number of pins displayed renders the map legible again, making it useful for navigation. However, limiting the number of pins has only hidden the problem, it has not rendered the map more interpretive or useful for navigation. Finally, these same problems appear when geolocating many stories in small spaces or dense spaces—such as a cemetery. The tight clustering of pins requires zooming so far in to the base map that it does little to orient a visitor to the landscape. Moreover, such clusters can't be easily disaggregated (or expressed) at wider zoom levels, making the nuances of stories geolocated in small spaces less apparent and discoverable.

These cautions about geolocation are not arguments against using it in mobile apps—especially landscape-based apps. Indeed, we continue to view geolocation functionality as a critical function in Cleveland Historical, and we see this function as an important tool in the arsenal of mobile interpretive endeavors. However, we believe that geolocation needs to be engaged more critically and thoughtfully. We believe that mobile endeavors—including both landscape and indoor/museum applications—should supplement geolocation with other modes of discovery and interpretation. While our team loves historic maps—and often uses Sanborn Maps in interpretive stories—it is not clear that these maps actually solve the problem of interpretation on small devices. We would encourage digital humanists to seek more creative solutions. One solution to this interpretive problem might be to use Open Street Maps, or another similar open software solution, as the background maps for an app. A project team could build (either itself or in collaboration with its community) a background map that carried the interpretive humanities perspective of the project—including interpretive data from historical maps—transforming the map into a deeper and more meaningful interpretive layer.

Landscape-based mobile projects should look toward the physical landscape for rich interpretive context. Indeed, constructing stories that draw upon the landscape for interpretation provides an extraordinary opportunity to unleash the particular benefits of a mobile-based project. For example, in Cleveland Historical, we urge our curatorial team to visit the physical landscape where their story will be geolocated as they conceive their interpretation. Using physical location to evoke a sense of place, to engage the tangible city, provides an unparalleled way to engage senses. Details matter—construction materials, natural environments, traces of former landscapes, architectural form, and contemporary use. Space matters. What does it feel, smell, and sound like to walk the area? In what ways does the space shape a user's learning? To the degree that the physical landscape enhances our understanding of the past, the reverse is also true. Humanities interpretation helps us understand landscape. History and culture shape our understanding of place. Developing interpretive research, images, and sounds helps to evoke the physical environment transform a physical space into an imagined space. This approach

engaging landscape offers an approach that makes full use of mobile technologies, one that is arguably the most powerful interpretive interaction possible for mobile interpretive projects.

Another approach is to use what technologists describe as augmented reality, which typically is defined in terms of using the sensors on a phone, such as a camera, to visualize content. In history-based apps, such as *History Pin*, this results in the ability to superimpose a picture of the current landscape over a historic photo. Other platforms, such as *Layar*, provide information about points in the landscape as you pan the phone's camera around a space. Both approaches provide a novel and interesting way to engage the landscape that uses the full functionality of mobile smartphones in situ in the landscape. If these approaches provide a clever way of using technology to enhance our connection to place, they nonetheless emphasize the technical over the interpretive. Superimposing a present view of building over a past view does not reveal the full interpretive dimensions of place, unless it is accompanied by an engaging elucidation. Too often what passes for augmented reality is a brief description of the overlaid images that does little more than identify the information being viewed through the lens of the smartphone's camera. From a humanities curatorial perspective, such an emphasis on technology over interpretation does not fully succeed in evoking landscape and place. In fact, one could argue for an alternative definition of augmented reality that is based not in technical wizardry but in interpretive rigor. Building an interpretive context for landscapes being viewed—through imaginative images, oral history and other expressions from the past, and from theory and practice in the humanities—augments “reality,” and our experience of landscape in a much deeper fashion.

Effective Storytelling Strategies: Summary

In thinking about what makes good humanities interpretation at the level of the story, it is clear that there are no clear rules. In fact, there are many approaches to effective interpretive storytelling. Although there is no single best approach, our experience with Cleveland Historical, suggests that we can build a process that results in effective stories. For us that process begins by identifying a broad theme, topic, or even collection of primary documents—an interpretive thread, if you will—that will tie multiple stories together. This thematic, geographical, or temporal frame can be conceived as a frame for multiple stories that is tied together with tags, subjects, or keywords. Alternately, this broader frame can become a tour in its own right, and multiple stories for that tour can be composed simultaneously, by weaving them together creatively. In Cleveland Historical those threads have been defined thematically (crime and punishment, immigration, or the Civil War), by neighborhood (Tremont, Ohio City, Downtown), materials or architectural styles (statues, murals, art deco), or sources (the Cleveland Heights uses a common historical collection of street photographs from the 1970s.) Most important though is finding that topic or theme, and making it specific enough that it can inform multiple stories, but also broad enough that those stories can find ways to complement one another analytically.

Moving from the general to the specific, the next step is to identify a compelling place, person, event, or even humanistic theme worth building a story around. From there, identifying compelling source materials—primary and secondary—becomes vital. If a story cannot be expressed in image, sound, or video, then we have to reconsider our approach to that particular narrative. Coupled with this consideration of the particular, will be the consideration of how that

story is best geolocated. Geolocation of stories should not be literal. For example, in telling the story of an African American business, should the story be located at the owner's house or business location? What if there were multiple business locations? The trick is to identify a physical location that helps to interpret the story, not necessarily the most "correct" spot. Finally, the story works through a lengthy editorial process, with team members—graduate students, volunteers, and faculty—reviewing and adding to the entry as appropriate.

Below are more than a dozen guidelines that we typically share with new team members and project partners. These are listed in no particular order.

1. Interpretive digital storytelling is not the same as creating an encyclopedia. Wikipedia exists. Partners who want to create encyclopedic knowledge should edit Wikipedia. And, indeed, many mobile apps use Wikipedia in its various guises to provide geolocated information for mobile devices.
2. Interpretive digital storytelling is not the same as creating an archive of images, sound, or text. There are many digital archives that possess vast collections. We encourage our partners to add to these. But, we do not see Cleveland Historical as the same as those digital archives, such as the remarkable Cleveland Memory Collection in Cleveland.
3. Start with a single core element: person, event/moment, place, or human voice. Emphasize that core narrative, build interpretation around it, and then make it discoverable through links, tagging, geo-location, and other strategies for engaging users.
4. Take a strong humanities perspective. Express a clear point-of-view without resorting to the voice of the omniscient narrator.
5. Find sound. Collect oral history. Give voice to the past. We have conceptualized Cleveland Historical as a collection of stories. Build around such stories—and collect them.
6. Make videos as a way of providing one path—your path—through the story's materials.
7. Web 2.0 and mobile has broken the barriers between scholars and communities. Use that to the advantage of the story, by building with the local community. Work with partners to develop and produce narratives. University students, K-12 teachers, 10th graders, community members, and professionals at cultural institutions can all become effective interpreters in their own right.
8. Train community partners to become collaborators. Draw them into a project's conceptual approach. And, reward them for telling stories. Wikipedia is a model here—not the fact that anyone can edit an entry, but over several years the Wikimedia Foundation has built a large army of committed project volunteers. Indeed, Cleveland Historical succeeds in no small part because half of the staff are regular volunteers, training and working with other members of the regional community.
9. Humanities frames matter. Explore literature, art, sound, environment, architecture, and critical theory through your work. Oddly, the public finds these theories and ideas engaging, as long as they are not presented in a condescending and didactic fashion. In the case of Cleveland Historical, we advise the project team to find ways to make historical debates, ideas, and concepts transparent through primary materials, revealing the ways that history is being actively constructed and debated right in front of their eyes.

10. Layers matter. Interpretation gains power through its connections to evidence and the real world. Reveal that evidence; show it and allow users to explore and understanding the primary materials being revealed. Persuade.
11. Metadata, metadata, metadata. Think about tags, subjects, and language (for search) that can help users define their own path. Too little or imprecise metadata can obscure as much as metadata strategies that are too elaborate or overly precise.
12. Consider your audience. Not every story or tour needs to be developed for every member of the public. The project collects stories; users find themselves in those stories. Construct stories and tours for audiences.
13. Build context. Context means many things but it always deepens public understanding.
14. Make your argument through tags and tour. Tours, for example, make connections. Tours are physical routes, thematic routes, chronological routes, neighborhood or other place designations. Tours as both formal and informal paths. Tours must include story content, but also can include additional layers of information.
15. Multimedia file quality matters. Large pictures load too slowly on 3G collections; small pictures are hard to discern. Poor audio quality or editing diminishes or obscures the power of human voices to tell stories. Poorly constructed videos make us all look like amateurs. Users are accustomed to professionalism in their digital endeavors. Adhere to the formatting guidelines in the project printed materials
(<https://github.com/CPHDH/Curatescape/wiki/Formatting-requirements>.)

Technological Considerations

Mobile projects are digital projects. The distinction is largely about the user experience and the technologies used to access your interpretative work. Thus, like any digital project, perhaps the most important technology question for mobile projects originate with the process of organizing, structuring, and hosting data. Our experience recommends the approach advocated by the New Media Consortium in its Horizon Reports. Projects should utilize standards-based (such as the W3C Internet standard) data structures and content management systems (CMS). We especially recommend that the project adopt a CMS that will allow it to re-use its data in the future, as technology changes, and that can be easily managed and operated by the project team. Standards-based content management makes an important difference in furthering the goals of most mobile project for a variety of reasons. Most importantly, through using standards-based content management, as opposed to heavily customized, hand built, and idiosyncratic content management, you will discover that your data can be moved, connected, and managed more easily. This allows your project to change with technology. Not only does this allow your development team the ability to plan for the future, but also it will allow your team to collaborate with professionals at partner institutions. And, importantly, as the Horizon Reports make clear, it begins the process of allowing you to create an economy of scale, giving you the opportunity to reuse data for a variety of other projects.

Likewise choosing an open-source content management system that your team can install, manage, maintain, and even program can dramatically reduce your costs and/or dependence on external organizations. Open source has the advantage of being tied to a broader development community, meaning that your project can benefit from the technical insights of others, working on their own projects and returning their work to the community. Open-source can also liberate

you from proprietary software programs that only a very select few people can organize and manage, which can make your project more transferable, manageable, and durable.

As much as we recommend open-source tools, open-source software comes with liabilities, including higher technical barriers that pose challenges in terms of expertise, time, and cost. Likewise, as open-source projects evolve and these software tools change (over their life), issues of maintenance and cost can become burdensome. Even the strengths of open source tools, such as its modularity, can become weaknesses. If, for example, one plug-in fails an entire project can come crashing down. Relying on too many plug-ins that need to be constantly modified (to keep up with change in the core open-source software) can be burdensome. As projects grow more complex in this way, maintenance becomes a significant issue. Such considerations need to be planned for from the outset.

In developing Cleveland Historical the Curatescape framework, we chose Omeka as the open-source archival content management system for the project for the variety of reasons enumerated above. First, its adherence to Internet and archival standards meant that our project was connected to, and informed by work across a variety of fields. Likewise, as open-source software, we could use the insights of other programmers through plugins. We also liked that Omeka was relatively easy to use and widely used among cultural organizations, which helped to make the Cleveland Historical project more dynamic from a curator's perspective. We could trade content in and out quickly, sometimes in direct response to changes in project partnerships and upcoming events. We also liked the customizability of Omeka. Of course, not all open-source content management systems are easily customized, but the ability to customize the archive, as well as its look and feel provided a great deal of control to our project, and to partners' projects. It is also worth noting that we also have avoided too much customization because that can be difficult for less technical partners and organizations to deploy. Significant customization can also make projects harder to sustain, with the emergence of new software versions, changing web browsers, and other technologies.

Indeed, as we moved to build Curatescape and work with early adopters, we were surprised at the range of technical expertise possessed by partners. In some cases basic details about servers, obtaining hosting, or even buying domain names were difficult for partners. We had anticipated that most of the work in deploying the web-based aspects of Curatescape (which are freely available on Github repository) would be done by partners. We quickly learned otherwise. Many humanists possess sufficient theoretical understanding of digital issues to embrace the emergence of these tools (i.e. they understand metadata and such issues) but often lack the training (or technological fearlessness) to tackle some of the more mundane aspects of projects. As a result, we have come to recognize the provision of support for these services, as well as some of the more technical aspects of content development (see discussions of audacity and handbrake below in Content Development) can be vital to project success. Thus, we recommend project teams identify and cultivate some basic technological acumen as part of their projects, recognizing that these most basic of tasks can make the difference between success and failure.

Social networks and social sharing are vital to contemporary digital life and should be included in every project. Indeed, not only are they omnipresent in the contemporary digital age (a pervasive feature of so-called Web 2.0), but mobile phones have contributed to their expansion.

Indeed, social sharing is easier than ever with mobile because the devices' small size, portability, connection to the cloud, and ease of use have allowed us to engage in social sharing anywhere and everywhere. With this in mind, we recommend that mobile humanities projects embed social sharing into their work from the outset (which is very easy to do.) But, exactly how will you integrate these approaches to knowledge development and interpretation into your project? Will you ask your community to make contributions, respond to images or sound files, or create "favorites"? Is social sharing meant as a way to build a community of mobile users, share knowledge, or interact with your project? Of course, addressing such questions cuts to the heart of many projects, but it also helps mobile projects to remain sharply paired to specific project goals, which is especially helpful given small screen sizes and processing power (relatively speaking, at least to desktop computers.)

Moving beyond simply sharing content on Facebook or twitter, we recommend a variety of social strategies for projects as a way to jumpstart thinking in this area. First, and most easily, projects should create "channels" on social media sites (like YouTube, Facebook, or SoundCloud) to repurpose content and to enable more discovery of a project—both its expression on mobile devices as well as the content. More importantly, we also recommend that the mobile humanities move beyond merely sharing interpretive content toward a full consideration of how social sharing can contribute to the humanities interpretive frames and stories being developed. How can we involve crowds in the interpretation of data or stories, following some of the best examples of this work being done in broader digital projects? How could we engage audiences using mobile phones or tablets in the field into authors, editors, or contributors to our mobile interpretive projects? Of course, there are many administrative and editorial challenges that have not been fully worked out in humanities-based interpretive projects (as opposed to archival endeavors where they are more thoroughly proven.) Do you allow the community full access to editing, like Wikipedia? How do you staff such endeavors? What other mechanisms might you use for collecting stories? As will be discussed later, with Cleveland Historical, we have developed an approach to "community sourcing" that involves community members directly in content creation as team members and contributors. This has enhanced both our public engagement—one of the goals of Cleveland Historical—and also the quality of our interpretation. Even so, the cost—in terms of time, especially—has been significant.

Perhaps the most frequent question directed at us is about the distinction between native apps and web apps and which of the two is a better approach. Generally speaking, we tell people that it probably does not matter very much, and that they would be better served by starting with a different set of questions: related to audience, interpretive approach, expected user experience of mobile, and budgets. Once curators have begun to address these questions, they will be in a better position to determine whether they want a native app or a web app.

The difference between a "native app" and "web app" is relatively less significant than it was just a few years ago. Native apps are programmed specifically for the operating systems of different phones (such as iOS or Android) and they are installed directly onto phones using that system. (This, by the way, leads to the next question that I frequently get, but will not answer here: Should I develop for iOS or Android phones?) Native apps are only available through the various app stores and must be downloaded directly to the device. Native apps tend to be faster,

more integrated into the phone, and have richer features than web apps because they are programmed to access the phone's operating systems.

Web apps, by contrast, are programmed to operate on mobile internet browsers and are not dependent on phone operating systems, allowing them to reach a greater number of mobile users. They also don't need to be downloaded and installed to the device (although web apps can be installed to mobile devices, and can even be submitted to and obtained from app stores.) Web apps generally require a wireless internet connection to work, and don't interact (as yet) as effectively with device operating systems, making them less efficient than native apps. However, the emerging HTML5 standard for web development promises a richer and more satisfying user experience. And, finally, web apps often can be installed to mobile devices, and just like native apps are available in the app stores.

There is, of course, a third option also being pursued by many organizations, which falls under the rubric of "responsive design." With the rapid proliferation of mobile devices, there has been an effort to build websites whose design, and even functionality, change depending on the technology platform on which the user is accessing the website. This design practice, in which a website is optimized for mobile devices, will surely become pervasive in the years ahead and represents a good solution that fits within an organization's or project's existing web development strategy. Usually stopping short of being a fully installable web app, such responsive design should become standard practice across the digital humanities. In fact, building a mobile optimized website might be all that a museum or scholar needs to enhance an existing project, especially one with a modest budget. From a curatorial perspective, mobile optimized websites can be just as effective in deploying interpretive strategies, making them well worth considering.

In terms of the technological approaches, we would recommend addressing this technological problem as you would any other—by referencing the project's overall goals, audiences, and identities, as well as budgets. When we began work on Cleveland Historical in 2010, for example, we chose to build native apps for iOS and Android, with a website optimized (modestly so at first) for mobile devices, so that it was usable via web browsers on a variety of mobile devices and operating systems. In other words, we have taken a hybrid approach, incorporating some of the benefits of developing native apps for iOS and Android, while also making sure that Cleveland Historical was optimized for the mobile web and could be accessed on any device. And, indeed, one of our efforts with Curatescape has been to improve the responsive design of projects' websites, allowing them to work differently and more effectively on various phones and tablets of different sizes, as well as the desktop. It is useful to note that web design now begins with a plan for design and functionality for the mobile web—moving from phone to tablet, before moving to design of websites for laptops or desktops. Likewise, design for native apps also takes account of the size and scale of phones, as well as tablets. Thus, it is clear that no single best practice in this arena, and in fact project teams will receive a great deal of contradictory advice.

In part, Curatescape's development has responded to the present state of the technological environment and the challenges faced by many mobile project directors. First, we used a proven open-source archival software tool, Omeka, as the project's content management system. For the

web version, Curatescape involves only a series of plug-ins and mobile-optimized themes. We've made these themes and plugins freely available on Github, as part of our contribution to the Omeka ecosystem. Anyone can download (and modify) and deploy this theme immediately for their project. Deploying Curatescape native apps, however, involves the allocation of real staff time and resources, so there is a modest cost for implementing an iOS and Android app; even so, those costs are significantly less expensive than industry averages for comparable applications. Moreover, adopting one a Curatescape + Omeka solution allows a project team to develop and deploy its own distinctive project, rather than implementing their work on another organization's branded platform.) This is invaluable for a variety of reasons related to administration, funding, and discovery. Deploying a unique project allows project teams to raise funding from within their organization, to build partnerships across institutions, and allows for easier discovery of interpretive content. Indeed, this is particularly important in public and crowd-based projects that project teams have to sell to communities and partners, seeking "buy-in," either literal or figurative. Additionally, given the development of the semantic web and the technical infrastructure of the web, we see a future (and are developing toward that future) in which aggregating data and interpretive content (not just archives) will become increasingly easier, allowing project teams to share their work with other projects near and far.

Managing Projects: Audience & Community Engagement

Looking toward the future, as well as the near past, should underscore the import of effective and adaptive project management strategies. Indeed, our work in building Cleveland Historical, with its digital tentacles reaching back to the early days of the 21st century and a hand-coded HTML website on the Cleveland Cultural Gardens. Over the years, our lab's work has evolved and developed iteratively. And, building Cleveland Historical has been a dynamic and shifting endeavor, quite unlike publishing in analog forms, in which the book or journal article is the outcome and embodiment of years of work. Our projects have been cumulative and iterative, transforming with the technology. As a result, we recommend that project teams working on mobile endeavors, just as with digital projects more generally, develop a plan for management, maintenance, and continued development, including collecting and analyzing user data. Among the most pertinent management issues are those related to content management, design, content development, funding, and marketing. However, we would suggest that the most critical values possessed by successful projects are those that are conceived of as being dynamic and iterative. Indeed, the digital humanities are far more performative in character than many other acts of scholarship because of the continued give and take between audiences and project curators. And, indeed, thinking about audience is the appropriate place to begin any conversation about managing and developing a mobile interpretive project.

Audience matters. Mobile project teams should begin their project by considering what audiences and communities they are seeking to reach in building their project, and why and how mobile helps them to accomplish those goals. Of course, mobile devices are rapidly become the standard way that most people are accessing the internet, and we should surely be cognizant of this in developing digital projects. We can do this by using responsive web design, which alters the look, feel, and functionality of a website based on the device through which a user accesses the web. Even so, we should ask ourselves about audiences, how and when users might access our mobile projects, and how (or even, if) using mobile devices can enhance the outcomes of our project. For example, with Cleveland Historical, we imagined local communities, historical

organizations, tourists, and students as our primary beneficiaries, as well anyone interested in history. Likewise, we have sought to use mobile to connect and reconnect our audiences to the historical landscape. We hope that using Cleveland Historical in the landscape will allow users to engage the landscape and gain a deeper understanding of place, either while they are actively exploring the landscape or even after a walking tour in which they reflect on their experience of the city's built environment. Also, though, we anticipate users—including especially students—exploring and discovering historical stories that take them from their couch into the landscape to explore and develop a richer understanding of interpretive history. Also, based on observation of users' behavior, we have come to realize that for many users, Cleveland Historical has become a way to sit on their couch and virtually explore the city, following paths through its spaces and interpretive narratives.

If defining an audience is the first step in building a project suitable to a mobile project's interpretive strategies, other considerations will include both technological and management strategies. From a technological perspective, project teams have to work through a host of details including whether you want to deploy a native app, a web app, or merely build a mobile optimized website. Will the project's installable app include large amounts of data or will it query a database hosted on a server in the cloud? What sorts of content management systems are out there for managing mobile projects? Is it best to build something from scratch or adapt another platform to the project? The answer to these questions, as with many technical problems in the digital humanities, is "it depends." It depends on project audiences, goals, and budgets.

With Cleveland Historical we deploy mobile apps for iOS and Android and a website optimized for the mobile web because we wanted to reach the widest possible audiences, both in the landscape and on desktops and tablets. Each interface provides a different user interface that is suited to its particular technical environment, and designed to help users discover stories. The user interfaces especially emphasize their geographic location on a map. More important to Cleveland Historical was our commitment to using an existing open-source content management system as the backend for the apps and website in order to keep our costs down—both in short-term project development and long-term maintenance. Most critically, though, we believed that building an app around a proven content management system could help us make Cleveland Historical extensible to other places at very low cost or no cost—which generated CPHDH's Curatescape framework.

As part of the challenge of defining audience, comes the question of both how to collaborate and interact with public audiences, as well as how to build a core group of users. Collaboration is a key element of the digital humanities theory and practice, and, like all digital endeavors, we must consider exactly who, how, and to what degree external communities will become part of the interpretive humanities endeavor. Should our project use crowdsourcing strategies to engage the public in helping to solve research, interpretive, or factual issues? If so, how will our project maintain its connections to those publics, and what might this mean for the tools that we've adopted? If we choose not to crowdsource, how exactly will our projects engage public audiences? Will we allow user comments, social media interaction, or some other formulation for interacting with external communities? There is no reason to think that because they occur on smaller, more portable, device that mobile projects should be more or less collaborative than

other digital projects. Not surprisingly, how we answer these questions can shape a project significantly.

With Cleveland Historical, we saw the building collaboration as critical to engaging a public humanities audience that include the broader regional community of Northeast Ohio, including especially university students, local community groups, and K-12 teachers, as both a potential audience of users but also content producers. This has been a slow and labor intensive process that requires constant training, public events, and outreach, including especially face-to-face events. Building a mobile application, or digital project for that matter, does not mean that audiences and communities will automatically find the project on the app store. To the contrary, building a community of users takes time and effort. For Cleveland Historical, our team has focused on building audiences and partnerships through the work of humanities interpretation itself, by training collaborators and building a community of users simultaneously.

Building a collaborative mobile project can occur in multiple ways. Project leaders can develop multi-institutional partnerships as the basis for the project or, alternately, building those partnerships in an ad hoc fashion around particular initiatives. Leaders can also develop a interpretive strategy that involves the community in producing content. Likewise, project initiators can create public events that involve their audiences. A similarly important strategy is to build a user interface that draws the public into your mobile project, creating ways for audiences to discover project apps and to call them to action, first through downloading or using the app and then through inviting them to become regular users and contributors. Each of the strategies emphasizes the ways that mobile projects explode the formal boundaries between scholars or curator and community, and it is incumbent upon project teams to recognize that mobile is changing how we interact with our communities. Three examples of how we used unorthodox strategies to both promote Cleveland Historical and build interpretive content reveal the creative ways mobile projects can and should think about audience.

First, with Cleveland Historical, we blew the classroom up. We transformed teaching and learning history into something that happens both inside and outside the classroom. We have invited students—both university and K-12 students—as well as teachers, librarians, and community members to partner in building and using content. Our public history, urban history, and regional history courses became a vehicles for students to develop projects that explored important research questions that were coupled together under a broader themes—much the same ways that stories and tours are conceptualized in Cleveland Historical and Curatescape. Students conducted primary source research, identified archival items, explored secondary themes in the scholarly literature, and compiled their results into collections of documents, essays, and short interpretive stories. This work, presented to the community and published on a course blog, was submitted to the editorial board of Cleveland Historical for publication. Students are named as authors, and indeed about 75% of all the work that appears on Cleveland Historical originated in a University or K-12 classroom.

We extended our work from university students to K-12 teachers, neighborhoods, and institutional partners through workshops, grant programs, and events. Our team involved K-12 teachers through institutes designed to help them teach history more effectively and to expand their professional development. We invited teachers to help us figure out how Cleveland

Historical could best fit into K-12 classrooms. Some teachers trained their AP students to develop content for the app. Others use it as a “textbook” for their courses, in one case giving transforming old-style webquests into virtual and real scavenger hunts through Cleveland’s neighborhoods and treating the city like a living museum. We invited communities and institutional partners to explore some of the same ideas. This resulted in community training events and also community development corporations assisted our team members in building interpretive narratives that could be used in neighborhood walking tours.

As our partners began to use Cleveland Historical for neighborhood walking tours and community events, we evaluated how users were using the apps during events. Our observations revealed much about how mobile projects work and do not work. First, we discovered that a startling number of people still do not have smartphones, though we should not have been surprised by this. Approximately 50% of all Americans own smartphones. That means that the other 50% don’t. Most smartphone users come from younger demographics. The demographic for neighborhood walking tours skews a bit older than overage (at least from our observation.) Second, we discovered that many people did not know how to use their smartphones, not realizing what a QR code was or how it worked in the landscape. We had to improvise and provide on-the-spot training. Third, and perhaps most interestingly, many users enjoyed using the app during their walking tours but also reported wanting to go to Cleveland Historical later for more information and to discover other neighborhoods. Our experiences, over multiple tours, confirmed the importance of providing paper tour brochures for those without smartphones. Postcards, posters, and window clings with QR codes helped alert people to Cleveland Historical, but the QR code was not necessarily an invitation to download the app, reminding us that we have to continue to develop strategies to invite people to use the app in the landscape. And, finally, the events themselves—and especially the human contact associated with them—proved to be among the most effective ways to build audience.

As our team has worked with the community to build interpretive content and users, we have been struck by how performative the digital humanities are. In much the same way that teaching is an act of planned improvisation, or delivering an excellent lecture depends on excellent performance skills, so too the digital humanities requires careful planning but deep and engaged performance. Indeed, we consider each time a mobile user interacts with the apps he or she is engaged in a performance that we’ve helped orchestrate. When we think about design, we ask ourselves about audience, technology, and the particular interpretive goals of a story or a tour. How will users discover a story? How will they engage it and respond? Thus user design is one of the most critical managerial and technical issues. This is especially true in mobile environments, as smaller interfaces force us to adopt new strategies. As we’ve worked to extend Curatescape, we’ve been evaluating how users engage the apps as a way of building a design that is as thoughtful as our interpretive strategy.

Collecting user analytics has already proved beneficial to our conceptualization of the new user interface. For example, it was through watching users become frustrated with a cluttered map interface that revealed to us that geolocating stories on the map was not always users’ first choice in navigating content and neither was search. Users appear to enjoy being led by our curatorial team, as well as discovering serendipitously. As a result, we are updating the user interface. We also have added a “View Random Story” button, and also are exploring other modes of discovery

for the next iteration of Curatescape, including discovery conditioned by algorithms (drawn from an aggregation of all selections, and paths of those selections, made by other users.)

Similar considerations should also pertain to our evaluation of content. Indeed, we should be cognizant of the challenges involved in balancing engaging storytelling against rigorous interpretative expression. Of particular note, partners asked for an enhanced ability to express the research that underlay story development, including bibliographic citation and more effective linking. Even though this information added a deeper layering to stories, it sometimes tended (as in the case of bibliographic materials) to overwhelm even the text—especially on smaller mobile devices where long textual entries appear to detract from user experience. Similarly, providing links offered users an alternative interpretive frame and connections that enrich the materials. But, at the same time, these move users away from the multimedia material curators had selected. Thus, this balancing act—of providing a strong interpretive voice but also revealing the richness of the team research—will remain a challenge for projects. In fact, in many respects, it reflects the broader challenges of the humanities in adapting its interpretive strategies to emerging formats.

It is difficult to assess the effectiveness of user design interfaces or interpretive strategies unless a project rigorously collects and evaluates data. Few humanities-based mobile projects appear to engage in such evaluative practices, which appears to be true of the broader digital humanities field. Indeed, we should demand better collection and evaluation of user data in all projects—making it a critical element of our professional endeavor. We are remedying this with Curatescape by implementing user analytics that track (anonymously) user experiences on mobile devices in a way that complements the rigorous data that we already collect about visitors to the project website. Additionally, as we modify Curatescape for indoor use, we'll be conducting rigorous user studies (with NEH funding.) Our users can teach us much through their explorations of our interpretive stories. We must collect that information (anonymously, by the way) and try to determine how to improve both our presentation and our stories.

Understanding audience responses to the apps and their interpretive content provides what is arguably the best vehicle for considering more mundane aspects of a mobile project's management, including such issues as marketing and funding. Marketing is critical and can be expensive. The best marketing strategies, as we've already implied, are those that develop organically from your mobile project. However, with Cleveland Historical, we also implemented traditional strategies (including hiring a dedicated PR firm) as well as targeted social media strategies. One of our favorite strategies has been to distribute printed postcards, and we've also handed out t-shirts with the Cleveland Historical log. These have all raised public awareness and build users. But, they have not been as effective as tours, community projects, and teaching endeavors in building awareness and audience.

Finally, in terms of budgets, building mobile projects is expensive, not just from a technical standpoint but from the perspective of implementing dynamic interpretive strategies. These costs, as well as technical considerations, have placed mobile projects largely beyond the budgets of scholars and small humanities organizations. It is this concern that we have sought to address with the development of Curatescape—making the mobile optimized website for Omeka free—and the deployment of native apps for iOS and Android available at a minimal cost. Our

goal has been to allow curators to deploy mobile projects with relatively modest technical costs, allowing them to focus their energies on funding the development of content.

There are many fundraising strategies, but our team would recommend against charging for mobile a humanities-based mobile application. Relatively few people pay for mobile applications, and if they do pay, they would expect to pay only \$1 or \$2, the typical price point for the vast majority of apps. Not only does this reduce the number of apps downloaded, but it generates relatively little income. For example, subtracting commissions or costs associated with the Apple App store or Google Play, for a \$1 App would yield less than \$0.70 in revenue per sale. If each of the 13,000 people who downloaded Cleveland Historical had paid for the app, the project would have netted less than \$10,000 far less than the amount spent on the project to date. Projects are better served seeking support for the endeavors in other ways, which we shall discuss in more detail later.

With Cleveland Historical, we have raised money to build content for the apps using a variety of strategies. We've written small grants to allow us to fund the development of interpretive content for neighborhoods. We've also worked with local community development organizations to adapt tours to their public events, allowing both our organizations to benefit. We've also worked with university grant programs and schools to find ways to fund interpretive work developed by teachers and students. In each case, we've been able to raise funding within the community through which the community interprets its own history, develops deeper historical understandings and a sense of civic engagement, as well as contributes to a broader regional initiative. Indeed, these funding mechanisms have contributed to our core marketing efforts, as the community has "bought" into the app through funding the development of content and through individuals becoming involved in developing its content.

Curatescape and Mobile: Where next?

Mobile technologies will continue to evolve, and our work will seek to respond to technical developments that will help us to meet our project goals. For example, We are seeking to continue to build out the Curatescape framework, allow humanities curators to "publish" their work through multiple technological channels, emphasizing multiple ways to discover interpretive and multimedia humanities narratives. Included in this effort will be electronic and print books derived from the stories developed for the mobile settings. Likewise, we are exploring alternatives to geolocation as a mode of discovering, including perhaps using community-sourced Open Street Maps rather than Google Maps as the background layer. At the same time, we are considering how to create a version of Curatescape that allows users to experience indoor and other close spaces that does not use a map but nonetheless enhances users' experiences of museum collections. Our goal is to find a ways for users to discover and pursue their interests, as well as find new interpretive materials. Among the strategies we're seeking to deploy will be algorithms that for users favorites (and playlists), or even user tagging of stories. Also, we are exploring ways to connect content across the various Curatescape apps, in hopes that users might discover new places, stories, and ideas through interconnecting and aggregating content from multiple projects. More broadly, we expect other humanities based app developers to develop projects that utilize gaming techniques, near field communication, and perhaps even the semantic web to develop unique user experiences that move us toward richer humanities curation in mobile environments.